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MINOR STUDIES FROM THE PSYCHOLOGICAL LABORATORY OF WELLESLEY COLLEGE.

Communicated by MARY WHITON CALKINS.

III.—A STUDY OF THE DREAM-CONSCIOUSNESS.

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This paper presents the results of a study, by the writers, of their own dreams and of the dream-records of four fellow students.¹ The observations followed the general plan outlined by Miss Calkins,² and this description of them lays special stress only on experiences which confirm her conclusions on disputed points or which contradict her results. The dreams were recorded during periods of six and five weeks, and numbered 141, 150 and 50 respectively. The smallest number is probably due to the fact that the subject, unlike the others, found it impossible to record the dreams immediately upon waking, so that her records were made in the morning, when many dreams had been forgotten.

Both *W.* and *H.*, who record the time of their dreams, find that half of them occur before 4 A. M. The proportion of night dreams is thus much larger than in the case of the earlier observers, and definitely substantiates their assertion that "the sleep of the middle of the night is in no sense a dreamless sleep." The influence of the time upon the number and character of *W.*'s dreams is of interest. Only one-tenth of them occurred before midnight; these were all of a probable nature, not vivid, and therefore hard to recall. Those from 1 to 4 A. M. were more frequent and more vivid, but still of the probable variety, including among them only one absurd or fantastic dream. The dreams occurring from 5 to 6.30 are the most frequent, most interesting, most vivid and most varied. A possible explanation of this may be found in the greater morning freshness of the mind, but it is also likely that the recall of the morning dreams is easier and more detailed. The conclusion of another subject is closely allied with this. "In every case," she says, "where distinct thought has occurred in dreams, it has been in those during the morning sleep." She adds the reminder that these morning dreams are those best recalled, so that it is always possible that reasoning has been present in night-dreams and then has been forgotten.

The dreams occurring at odd moments are also of an interesting

¹To two of these, Miss Mary Coleman Adams and Miss Mabel W. Lees, special thanks are due for very full records and for many valuable suggestions.

²"A Statistical Study of Dreams." AMERICAN JOURNAL OF PSYCHOLOGY, Vol. V, p. 312.

nature. They are the results of momentary drowsiness in church and in the class-room, or of short naps taken during the day. Of the eleven recorded, all are of a highly probable nature. An experience resembling this, and yet distinct from it, is that of another subject, who writes of her "waking dreams." "Often," she says, "when I am awake I pass into a state resembling sleep, in which I lose control of my imagination, but keep my powers of perception and reasoning. I dream before I go to sleep, and the way I have proved this is by opening my eyes, looking around the room, turning over in bed, closing my eyes again, and taking up the dream where I left off. Very often I am able to finish a dream in this way when I have been waked in the middle of it." Waking dreams of this sort, like hypnagogic images, indicate the unity which underlies all the distinctions of waking and dreaming life.

As in the case of the earlier observers, the occurrence of the presentation (the consciousness within the dream of actual, external stimuli) has been relatively infrequent, but *H.* reports 20 dreams (of 150) which were caused by external stimuli, and 13 instances in which a presentation is taken up into a dream already "under way." In nearly one-third of these dreams the presentation is experimentally induced. The subject places flowers or onions by her bedside, and dreams of smelling and tasting; or she eats salt just before going to sleep, and dreams of a thirsty drive through a wilderness. Or she is the victim of certain mild experiments: her face is sprinkled with water and she dreams of a rain storm; a paper bag is burst near her ear and she dreams of hearing shots fired. The converse effect of the dream upon the waking experience is observed in one-tenth of *H.*'s dreams. She wakes tired and lame after a dream of running; she smells and tastes onions after dreaming that she eats them; repeatedly she wakes herself by a real cry of terror at some dream-apparition.

But with *H.* as with the others, dream-imagery occurs far more often than dream-perception. Its different types have been closely observed, since it is so often claimed that only visual and auditory images occur in dreams. These records, like the earlier ones,¹ distinctly contradict this assertion. Visual images predominate, so that, for instance, visualization occurs in each of *W.*'s dreams, and auditory images, especially verbal ones, are next in number; but dermal, gustatory and olfactory experiences certainly occur in the dreams of the writers and of others. In the dreams of one of us the sense-images are present in their natural combination as in the waking life. The presence of sight, hearing, smell, taste and pressure is shown in *Dream 2, W.*: "I seem to be in a beautiful wood, where sunlight and shadows lie under the pines. A fragrant odor fills the air, and the wind, as it blows among the trees, seems to sing a song. . . . I lie under the trees, while the low branches come brushing down over my face, and I feel the pressure of the mossy bank beneath me. A branch brushes low over my face; I break it and bite the pine needles, noticing their flavor. . . ."

Several taste-images of great vividness have occurred among the number recorded. An example illustrating both smell and taste-images is a dream recorded by *H.*, on a night when she had taken special precautions against objective tastes by washing out her mouth before retiring: "(*Dream 55, 1 A. M.*) When we came down to breakfast, there were only onions on the table. Every one

¹ *Op. cit.*, AMERICAN JOURNAL OF PSYCHOLOGY, V, p. 321.

seemed to be eating them and enjoying them, so I ate some and liked the taste, but the odor was very disagreeable."

These instances, with others recorded in Table III, in which taste *images* and not "real" tastes were concerned, reinforce the cases collected by Dr. Titchener,¹ and show the improbability of any theory² according to which brain-centres of taste are excitable only through peripheral stimulation. Olfactory dream-images have been noticed by four observers, in some cases as very vivid—the odor of heavily scented flowers or of burning cloth—but sometimes as a faint and pleasant fragrance. All these characteristics are summarized in

TABLE I. DREAMS CONTAINING REPRESENTED SENSE-ELEMENTS.

SUBJECTS.	SENSE-IMAGES.				
	Visual.	Auditory.	Dermal.	Gustatory.	Olfactory.
W. (141).....	141 (100. %)	127 (90. %)	19 (13.5%)	17 (12. %)	21 (15. %)
H. (150).....	109 (72.7%)	82 (54.6%)	9 (6. %)	4 (2.7%)	4 (2.7%)
P. (50)	46 (92. %)	35 (70. %)	9 (18. %)	2 (4. %)	1 (2. %)
Others (40)...	36 (90. %)	18 (45. %)	4 (10. %)	1 (2.5%)	0
Total, 381	322 (84.5%)	262 (68.7%)	41 (10.8%)	24 (6.3%)	26 (6.9%)

Excluding, of course, the mere presence of the imagination, in which the dream-consciousness consists, many cases of explicit imagination occur in these dreams in which the mind has, as it were, run forward to picture some probable result or to discover some way out of a difficulty. So one dreamer, proposing to mend the tire of a bicycle with black silk tissue, "imagined very clearly how strange the gray tire would look if I put that black band around it." Memory also is a frequent or an occasional factor and sometimes is of events within the dream, as when (dreamer *W.*) "I get aboard the street car and go for a few blocks, when I remember that I left a package lying on one of the counters of the store which I just left." At other times the memory is of actual events of the waking life. So one or two long but accurate dream computations, by one of the writers, were helped by the memory that on certain dates, certain things had happened. The presence of memory within dreams suggests the memory of one dream from another, which is allied with the inter-connection of hypnotic states, and whose common form is the recurring dream. All but one of our subjects have dreams of this sort; and of twenty-five people questioned nineteen testified to some such experience. In some cases the dreams form a sort of "continued dream." Paramnesia, of course, is common.

¹ AMERICAN JOURNAL OF PSYCHOLOGY, VI, p. 507, seq.

² Cf. J. C. Murray, "Proceedings of the American Psychological Association," 1892.

Explicit thinking and reasoning have occurred so certainly in the dreams of all the subjects that it is possible to deny dogmatically the frequent statement that dreams are characterized by the entire absence of thought. The reasoning of dreams may be incorrect, but is often accurate. A general tendency, especially noted by one of the writers, is to account for the unusual and unexpected improbabilities of the dream. Here we have dream-reasoning pitted, as it were, against dream imagination: the dream-images, though recognized as unusual, are accepted as objective and actual, but brought into unity with the waking experience by some sort of explanation.¹ The following dream, for instance, shows very acute reasoning under somewhat improbable circumstances: *Dream 15* (The subject was waked by the rising bell, but fell asleep again.) "The devil came and suggested that he would change my self-consciousness, making me over into a person with no pressing duties, then allowing me to sleep as late as I wished without interference of conscience. I recognized that the suggestion was from the devil, and after considering the matter decided that I would not accept the offer, since the devil would probably cheat me." Another case of reasoning reflects the every-day study, and applies it in a very practical way: "*Dream 119*. H. 6 A. M.) We were going for a long drive, but just before the time of starting it began to rain very hard. I said to my friend, 'I am a stoic, therefore I cannot be disappointed nor unhappy, therefore I do not care whether it rains or not; I am perfectly neutral, and if you were a stoic you would feel the same.'"

All save one of these dreamers have had dreams including choice, usually involving cases of conscience and more or less prolonged reasoning. One of them is required in a dream to make a dissection for which directions are written in Greek (*Dream 13, P.*): "I was in distress because my instruments would not work, and I had forgotten what I knew of the Greek. I reasoned with myself about the honesty of having some one translate the directions. After much thought I decided that I would not have the directions translated, because the work was to be individual . . . and this would be deceiving."

More than half (57.2%) of the 381 dreams considered are said by the subjects to contain "disagreeable" emotions, but more than one-fourth (28.6%) are pronounced pleasant, a result which differs greatly from that of the earlier records. In these pleasurable dreams are hardly discovered, the number of emotional dreams is much smaller (only 21.3% of 375 dreams) and of these only one-fiftieth (2.4%) are pleasant, while more than one-sixth (17.6%) are painful or disagreeable. The divergence of individual experience is strongly marked at precisely this point. To two of our subjects dreams are preëminently a source of pleasure. One of the writers records 72 of 141 dreams as distinctly pleasant, though there have also been vivid dreams in which pain has been keenly felt. Another says, "I look forward with delight to my hours of sleep." Still a third observes that on the whole dreaming is a very pleasant experience, but that in these dreams the disagreeable predominates. This suggests, of course, either that the ordinary impression is a careless one, or that the dream study brings about an abnormal emotional disposition. The classification is difficult in any case, for the emotions during the dream

¹Cf. *Op. cit.*, AMER. JOURNAL. V., 339.

and immediately after waking from it are often entirely different from those suggested by reading its record.

These results are summarized in the following table:

TABLE II. EMOTION IN DREAMS.

Dreams are.....	NAMES OF SUBJECTS.				
	W. (141). ¹	H. (150).	P. (50).	Others (40)	(Total 381).
"Pleasant" ..	72 (51.00%)	19 (12.6%)	9 (18%)	10 (25%)	110 (28.6%)
"Neutral". .		15 (10.0%)	4 (8%)	4 (10%)	23 (6.0%)
"Disagreeable".....	70 (49.64%)	99 (66.0%)	23 (46%)	26 (65%)	218 (57.2%)
Total Cases Emotion...	142 (100.00%)	133 (88.6%)	36 (72%)	40 (100%)	351 (92.1%)

Perplexity and hurry, discomfort and helplessness, fear, anger, disappointment and shame are the chief unpleasant emotions in the order of their prominence. On the other hand, æsthetic enjoyment, of which Miss Calkins found no trace in the dreams which she studied, has been a relatively frequent experience with these dreamers, though one of the writers observes that the beautiful turns into the horrible or the absurd in almost every instance. A dream of the beautiful is, for instance, the following: "*Dream 48, H., 3 A. M.*) I went into the garden and there were all the roses beginning to open. A little bluebell rang out and the roses began slowly to unfold. The garden was a perfect bower of beauty; every rose on every bush was opened, the bluebells were all ringing, the other flowers all opened, the birds began to sing."

The existence of some connection between the dream world and the waking world, that is, the suggestion of the dream by some actual experience, is traced in most of the dreams. *H.*, however, finds this connection only in half the dreams, but adds, "I think that many of mine might be traced to things . . . forgotten." The exact relation, however, differs with different individuals, as is shown by an analysis of the dreams. The figures representing the dream-characters are not reduced to tabular form, because of the difficulty of dealing with cases where people appeared in crowds — as in church or in class — but the *locale* of the dreams is indicated by the following summary:

¹ The percents. are calculated on the totals at the head of the vertical columns, so that the percents. represent the proportions of each subject's dreams and of the total number, which are "pleasurable," "neutral" and "disagreeable." The term "neutral" is applied chiefly to feelings of surprise and wonder.

TABLE III. DREAM SITUATIONS.

	Distant.	Near.	Unknown	Total.
W.....	68 (41.0%) ¹	53 (32.0%)	45	166 ¹
H.....	34 (22.7%)	81 (54.0%)	35	150
P.....	39 (71.0%)	12 (22.0%)	4	55
Others.....	6 (17.1%)	19 (54.3%)	10	35
Total.....	147 (36.0%)	165 (40.0%)	94	406

These totals show that the larger number of dream situations belong to the present. There are, however, marked individual differences, amounting in the case of *P.* to a preponderance of the absent and the distant in her dreams. The most striking divergence of these results from those of the earlier investigation, relates to dreams of the dead,² of which several appeared in each record. One of the writers dreamed constantly of a relative during the months immediately following her death, years ago, and has dreamed often of a member of her family during the year which has passed since his death. Another says: "Since the death of a very dear relative about a year ago, I have constantly dreamed of him; only once have I dreamed of his being dead—all the other times he has been in circumstances of ordinary life. Our relations have been peculiarly pleasant, and often it has seemed as if he commended me for some things I had done. When I began to record my dreams, I wrote down one or two of this nature, and then they suddenly stopped. Not wishing to give up this experience, I no longer recorded dreams, and after two or three nights these dreams began again; they are always pleasant and sometimes the presence of my friend seems to be with me, even when I have no distinct dream." While therefore accepting, as a general rule, the assertion that the dream world is most closely bound to the life of the here and the now; and that its people, its places and its events are unconnected with the most significant phases of the waking life, the freest exceptions must be made in deference to the lawless caprice of dream association and to the unexplored differences of individual temperament.

On still another point these records differ materially from the earlier results. *W.*'s dreams are the only ones which include a majority (95 cases, that is, 69%) of probable dreams. Four-fifths of *H.*'s dreams and nine-tenths of *P.*'s (115 and 47 cases) and three-fourths of the rest are rated as improbable or as impossible, that is, as fantastic or absurd or horrible. Of *W.*'s probable dreams some, however, have been so vivid that she says of them "in one or two instances they have been [later] mistaken during a short time for the actual."

The dream-illusion has not often assumed the form of an entire change of personality. Sixteen such cases occur; in all but one of these, as in the similar cases reported by Miss Calkins, the change is mainly of the physical personality, and does not affect the consciousness of self-identity. So *H.* dreamed several times

¹ The percents. in this table are calculated on the totals in the right-hand vertical column, each representing the entire number of dream places of one subject.

² *Op. cit.*, p. 333.

of growing smaller and becoming her child self. Once when she "changed into" a fellow-student, she thought it strange "that the teacher did not know that I was doing all the reciting"—an expression which clearly shows how the real *I* was watching over the assumed personality. In one dream, however, there is at least a close approach to what is called loss of personal identity. (Dreamer *W.*) "I seem to be an old minister, lean, tall, with long, thin white hair. My coat is a long Prince Albert, worn at the elbow; my tie is black. I realize that I am soon to die. I review my whole career as a pastor, call to mind several people and some of the details of the work. I think of some of the sermons I have preached and feel a strong sense of my shortcomings." The writer adds: "In this entire dream I do not view the personality which I have assumed as one apart, but as one from within. I do not see the long, gray hair and the black tie, but imagine them as one imagines any bodily characteristic or any article of dress not in direct vision."

The dream experience of *H.* includes repeated occurrences of the "veridical" dream. Most of these relate to unimportant happenings: a drive is dreamed the day before it is taken, and the muddy places in the road are accurately foreseen, or an unannounced examination occurs in a dream of the preceding night. Occasionally, however, these dreams are precursors of more significant events, as when a dream-letter announcing illness is followed by an actual letter of the same sort, and as when a death which later really occurs is announced in a dream.

The dreams which have been recorded as a basis for this study are, in fact, generally richer and more significant than those of the earlier observers.¹ The chief result of the investigation is therefore the emphasis which it lays upon the individuality of the dreamer and upon the consequent impossibility of all dogmatic generalizations about the rules and fashions of dreaming. Most of the traditional limitations of the dream-consciousness, like the denial of thought and volition and of taste and smell images, are definitely contradicted on the testimony of all these observers. The continuity, also, of the dream life with the waking life is shown, and there are suggestions of the likeness of the dream-consciousness to the hypnotic condition.

¹AMERICAN JOURNAL OF PSYCHOLOGY, *op. cit.*, p. 332.